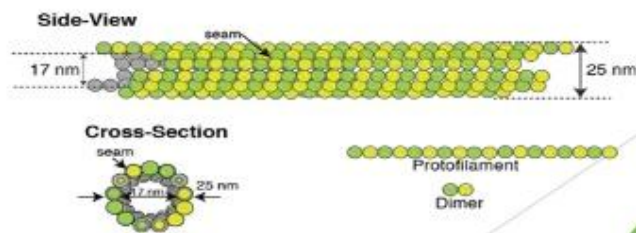
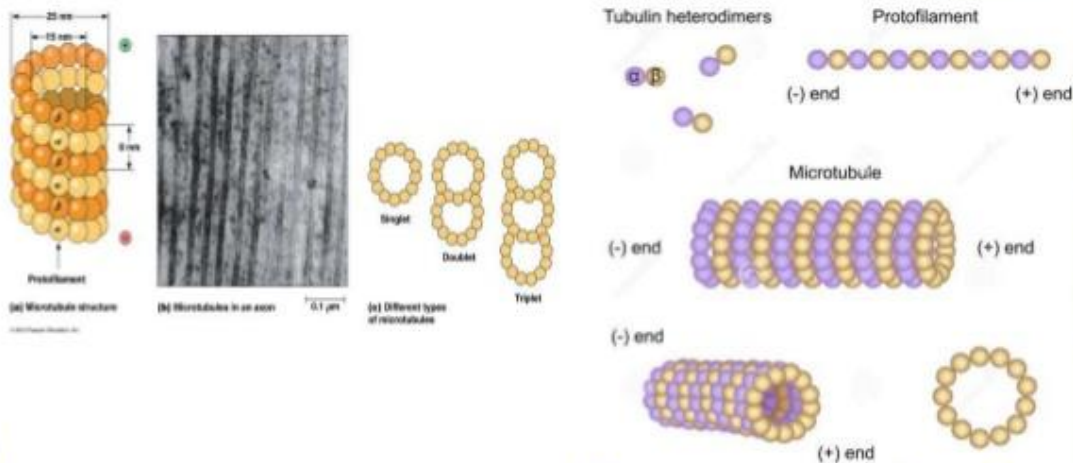


# Microtubules

- ▶ Long hollow cylinders made up of tubulin.
- ▶ 25 nm in diameter.
- ▶ Provide internal shape and support to cell.
- ▶ Also involve in nucleic and cell division.
- ▶ Two types of tubulin are found alpha tubulin and beta tubulin.

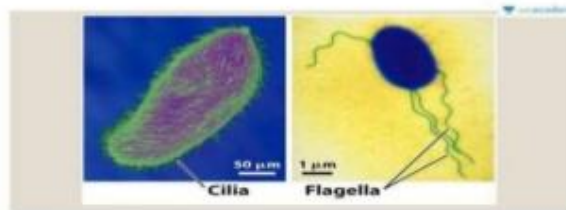


## STRUCTURE OF MICROTUBULES



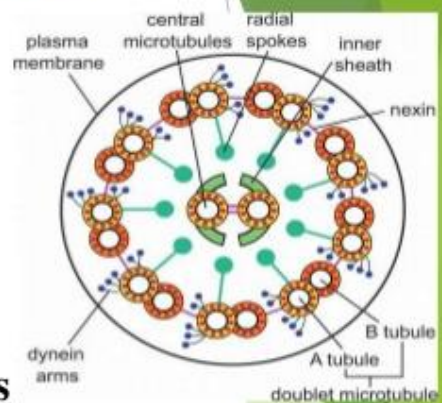
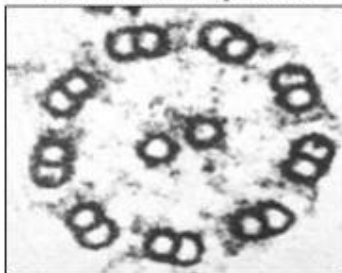
## CILIA AND FLAGELLA

- ▶ Cilia and flagella are hair like structure.
- ▶ Made up of microtubules and covered by extension of plasma membrane.
- ▶ Cilia and flagella move liquid past the surface of the cell.
- ▶ They create current for obtaining food from aquatic medium.
- ▶ On epithelial cell lining of respiratory tract huge no. of cilia are found.



9 + 2 arrangement

Electron Micrograph of the cross-section of a sperm tail



### ❖ Drugs that affect microtubules

Taxol  
Colchicine  
Vinblastine